User's Guide for the Stand Summary Statistics Event Monitor Addfile [1]

Andrew J McMahan, INTECS International, Inc.
Eric L Smith, USDA Forest Service
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Forest Health Technology Enterprise Team (FHTET)
USDA Forest Service
NRRC, Bldg A, Suite 331
2150 Centre Ave.
Ft. Collins, CO 80526-1891

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Overview

The Summary Statistics Event Monitor (EM) Addfile (*Sum_stats.kcp*) is an FVS **k**eyword **c**om**p**onent file (*.kcp* file) that assigns values of pre-defined FVS/Event Monitor variables to new, user-defined variable names via the Event Monitor's COMPUTE keyword. This assignment of values to new variable names is done throughout simulated time. Using the COMPUTE keyword, along with the Compute2 post processor, results in these values being written to their own file, e.g. a *.cp2* file (see below).

This EM addfile does not schedule or perform any activities that affect the simulated stand. It only schedules COMPUTE statements that returns (writes to a file) the following FVS variables (at every cycle-beginning year):

- **Cycle end year**
- **Stand age**
  The following nine are reported both *before* and *after* simulated management actions:
  - **Total trees per acre (TPA)**
  - **Total stand basal area (BA)**
  - **Stand density index (SDI)**
  - **Crown competition factor (CCF)**
  - **Average top height**
  - **Quadratic mean diameter for the stand (QMD)**
  - **Total cubic feet in the stand**
  - **Total merchantable cubic feet in the stand**
  - **Total merchantable board feet in the stand**
- **TPA removed**
- **BA removed**
- **Cubic feet removed**
- **Merchantable cubic feet removed**
- **Merchantable board feet removed**
- **FVS cycle length**
- **Growth accretion (cu ft/acre/year)**
- **Mortality volume (cu ft/acre/year)**
- **Mean annual increment (volume) from previous cycle (cu ft/acre/year)**
- **Stand sampling weight (usually acres)**

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[1] This document is part of a package containing a number of files: (1) this document, (2) the FVS/Event Monitor addfile *Sum_stats.kcp*, which this document describes, and (3) ArcView legend files that can be used by the custom ArcView® project FVS-EMAP. The package, a self-extracting WinZip® file (*sum_stats.exe*), as well as FVS-EMAP project software, is available online:
http://www.fs.fed.us/foresthealth/technology/products.htm

Using the Event Monitor Addfile

Note: the instructions below assume that the user wants to download the entire "package" (addfile, documentation, & ArcView® legend files). Users not desiring the entire package may, instead, download the EM addfile *sum_stats.kcp* by itself, in which case the reader should begin at step 3 (after downloading).

1) Download the file *Sum_stats.exe* by following the link from FHTET's ***Products*** website at:

   http://www.fs.fed.us/foresthealth/technology/products.htm

   This WinZip® self-extracting file contains a number of files:

   (i) the Summary Statistics Event Monitor addfile (*Sum_stats.kcp*), and

   (ii) this User's Guide (*Sum_stats_EM_User_Guide.doc*).

   (iii) a number of ArcView® legend files (*.avl* files) to be used with FVS-EMAP. See next section for more information about FVS-EMAP.

2) After downloading, begin the extraction process by double-clicking the self-extracting WinZip® file (*sum_stats.exe*). Although the files may be extracted to anywhere on your computer; we recommend that you allow the extraction procedure to place the files into the default extraction destinations. By default, the EM addfile and the User's Guide will be extracted to **C:/fvsdata**; and the ArcView legend files will be extracted to **C:/fvs_emap/legends**.[2]

3) Launch Suppose and build your FVS simulation (keyword) file.

4) Select the *Group* or individual *Stand* to which you want include the Event Monitor addfile by (1) toggling the applicable radio button ('Current Group' or 'Current Stand') in the main FVS 'Selections' window, and (2) selecting the applicable group or stand from the window above the 'Change Group Membership' button.

5) Select 'Edit Simulation File' from the main Suppose 'Selections' window.

6) Select 'Insert from file'.

7) Navigate to the directory where the *.kcp* file is located.

8) Select the file from the window browser; click 'Open'. The file is now included to all stands in the current group (or to the current stand—see step 4).

9) 'Close' the 'Edit Simulation File' window.

10) Continue building simulation file, and when done, click 'Run Simulation'.

Output

If you want the Event Monitor output variables written to a file other than the standard FVS output file, you may request one or more of the post-processors that will create separate COMPUTE variable output files. These are accessible via the 'Select Post Processors' button from the main Suppose 'Selections' window. Three different types of output files are available for COMPUTE variables (via three different post-processors). In the 'Select Post Processors' window, the choices are:

[2] Thus, the default extraction procedure for this package assumes you are using the default directory structure provided with FVS-EMAP. If your installation of FVS-EMAP is different, then you will want to extract the *.avl* file(s) to your FVS-EMAP project directory's 'Legends' subdirectory. Both extraction and use of the *.avl* file(s) are optional.

- Compute1-Table of COMPUTE Variables (with headers)
  This post processor produces a file of all COMPUTE variables displayed by stand and by year in a table with headers. The file has a filename extension ".cmp"
- Compute2-Table of Concatenated COMPUTE Variables (comma delimited)
  This post processor produces a file of all COMPUTE variables by stand, and by year, in a comma-delimited (machine readable) format. The file has a filename extension ".cp2"
- Compute3-Table of COMPUTE Variable Averages
  This post processor creates a file containing averages (across stands, by year) for all COMPUTE variables. The file has a filename extension ".avc".

Displaying Event Monitor Output in ArcView®

Output from this EM addfile, written to a *.cp2* file (via the Compute2 post processor), may be conveniently brought into ArcView® via **FVS-EMAP**. FVS-EMAP is a custom ArcView® project developed by FHTET, and available for download from FHTET at:

http://www.fs.fed.us/foresthealth/technology/products.htm

Users having an ArcView® shapefile (or an ARC/INFO® coverage) of the stands simulated in FVS, can use FVS-EMAP to **join** the FVS output data with their shapefile, resulting in **map displays** of user-defined COMPUTE variables over simulated time.

The ArcView® legend files that accompany this package, while not necessary for the ArcView® project to work, facilitate the map creation process when making maps based on this application's output. If the legend files reside in the 'Legends' subdirectory—immediately subordinate to FVS-EMAP's project directory—then they will be available to the FVS-EMAP ArcView® project to be automatically loaded whenever a legend's associated output variable is to be mapped. See footnote 2.

References:

Crookston, Nicholas L. 1990. User's guide to the Event Monitor: Part of Prognosis Model Version 6. USDA Forest Service Gen. Tech. Rep. INT-275. Intermountain Res. Sta, Ogden, UT 29pp. [Electronic Version (modified Sept. 2001) available online: http://www.fs.fed.us/fmsc/fvs/documents/gtrs_event_monitor.php (last accessed 11/01)]

FVS software and documentation is available from the Forest Management Service Center, online at:

http://www.fs.fed.us/fmsc/fvs/

For further information, contact Eric Smith at: elsmith@fs.fed.us . 970 295-5841

Appendix: The *Sum_stats.kcp* Event Monitor Addfile

Note: users may "clip" the information below into a separate file and use it as an FVS addfile. Copying this information to its own file should be done in such a way as to preserve column spacing. The mono-spaced Courier font used below preserves column spacing.

```
! This Event Monitor returns standard FVS output variables.

! Note: Variable names ending "_Strt" are cycle-beginning values (i.e.
! pre-harvest).  Variable names ending "_rem" refer to removals.  Variable
! names ending "_pt" refer to Post-Thin values (after removal, but still
! beginning-of-cycle values).  See the Event Monitor User Guide (Crookston
! 1990) for definitions of variable names on the right hand side of each
! expression.

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!!  Prepared 11/01 AJ McMahan, INTECS International, Inc., for:    !!
!!                                                                  !!
!!  Forest Health Technology Enterprise Team, USDA Forest Service, !!
!!  2150 Centre Ave Bldg A Suite 331, Ft. Collins, CO  80526-1891  !!
!!                                                                  !!
!!  Contact: Eric Smith  970 295-5841 (email:  elsmith@fs.fed.us)  !!
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COMPUTE            0
CYC_END  = CENDYEAR
STND_AGE = AGE

TPA_Strt = BTPA
BA_Strt  = BBA
SDI_Strt = BSDI
CCF_Strt = BCCF
HT_Strt  = BTOPHT
QMD_Strt = BADBH

CUFTVOL  = BTCUFT
mrch_3FT = BMCUFT
mrchBDFT = BBDFT

TPA_rem  = RTPA
BA_rem   = BBA-ABA
3FT_rem  = RTCUFT
merc_rem = RMCUFT
BDFT_rem = RBDFT

TPA_pt   = ATPA
BA_pt    = ABA
SDI_pt   = ASDI
CCF_pt   = ACCF
HT_pt    = ATOPHT
QMD_pt   = AADBH

cycLNGTH = (CENDYEAR-YEAR)+1
ACCRETN  = ACC
MORT_VOL = MORT
MAI_m3FT = MAI
WEIGHT   = SAMPWT

END
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